

LASER SCRIBING

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Abstract

PURPOSE: To form a groove on a wafer without generating a crack by a method wherein the uniform and shallow groove is formed on the surface part of the wafer by pulse laser rays, and a group of pulse laser rays added with modulation is applied intermittently positioning upon the groove thereof to form scribing grooves.

CONSTITUTION: A laser beam is converted into continuous Q-switched pulse laser rays according to control action of a gate circuit 15 at first, and are condensed to a scribing line of a wafer 24. At the same time, an X-Y table 21 is transferred according to control action of a driver 22, and a shallow first scribing groove 25 having depth of about 100μm from the surface is formed uniformly along the scribing line. Then the circuit 15 is made to perform control action, and by making a group of Q-switched pulse laser rays obtained by adding modulation to the laser rays is made to oscillate intermittently positioning upon the groove 25, chevron type deep second scribing grooves 26 are formed at the place where a group of series of pulse laser rays is condensed.

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